

CLAIMS

What is claimed is:

1. A method for treating a patient with epilepsy, comprising:
providing at least one leadless stimulator having at least two electrodes;
implanting the at least one stimulator adjacent to at least one nerve structure at least in part responsible for epileptic seizures;
providing operating power to the at least one stimulator;
using at least one external appliance to transmit stimulation parameters to the at least one stimulator;
receiving and storing the stimulation parameters;
generating stimulation pulses in accordance with the stimulation parameters; and
delivering the stimulation pulses to nerves adjacent to the at least one stimulator;
wherein the stimulator has a size and shape suitable for placement of the electrodes adjacent to the at least one nerve structure.
2. The method of Claim 1 wherein the at least one nerve structure comprises at least one of a trigeminal nerve, a branch of the trigeminal nerve, a trigeminal ganglion, an ophthalmic nerve, a branch of the ophthalmic nerve, a maxillary nerve, a branch of the maxillary nerve, a mandibular nerve, a branch of the mandibular nerve, a greater occipital nerve, a branch of the greater occipital nerve, a lesser occipital nerve, a branch of the lesser occipital nerve, a third occipital nerve, a branch of the third occipital nerve, a facial nerve, a branch of the facial nerve, a glossopharyngeal nerve, and a branch of the glossopharyngeal nerve.
3. The method of Claim 2 wherein the stimulation pulses are delivered at greater than about 100 to 150 Hz.

4. The method of Claim 2 wherein the stimulation pulses are delivered at less than about 100 to 150 Hz.
5. The method of Claim 1 further comprising
providing at least one sensor;
using the at least one sensor to sense a physical condition; and
determining the stimulation parameters based upon the sensed condition.
6. The method of Claim 5 wherein the at least one sensor is a part of the stimulator.
7. The method of Claim 1 further comprising providing and implanting more than one stimulator.
8. A method for treating a patient with epilepsy, comprising the steps of:
providing at least one means for stimulating tissue;
implanting the at least one stimulating means adjacent to at least one nerve structure at least in part responsible for epileptic seizures;
providing operating power to the at least one stimulating means;
transmitting stimulation parameters to the at least one stimulating means using at least one external appliance;
receiving and storing the stimulation parameters;
generating stimulation pulses in accordance with the stimulation parameters; and
delivering the stimulation pulses to nerves structures adjacent to the at least one stimulating means;
wherein the stimulating means has a size and shape suitable for placement near the at least one nerve and has leads up to 150 mm long.
9. The method of Claim 8 wherein the body of the stimulator is no more than 150 mm from the at least one nerve structure to be stimulated.

10. The method of Claim 9 wherein the at least one nerve structure comprises at least one of a trigeminal nerve, a branch of the trigeminal nerve, a trigeminal ganglion, an ophthalmic nerve, a branch of the ophthalmic nerve, a maxillary nerve, a branch of the maxillary nerve, a mandibular nerve, a branch of the mandibular nerve, a greater occipital nerve, a branch of the greater occipital nerve, a lesser occipital nerve, a branch of the lesser occipital nerve, a third occipital nerve, a branch of the third occipital nerve, a facial nerve, a branch of the facial nerve, a glossopharyngeal nerve, and a branch of the glossopharyngeal nerve.

11. A method for treating a patient with epilepsy, comprising:
providing at least one leadless stimulator having at least two electrodes;
providing at least one sensor;
implanting the at least one stimulator adjacent to at least one nerve structure at least in part responsible for epileptic seizures;
providing operating power to the at least one stimulator;
using the sensor to sense a physical condition;
determining stimulation parameters based upon the sensed condition;
generating stimulation pulses in accordance with the stimulation parameters; and
delivering the stimulation pulses to nerves structures adjacent to the at least two electrodes;
wherein the stimulator has a size and shape suitable for placement of the electrodes adjacent to the at least one nerve structure.

12. The method of Claim 11 wherein the at least one sensor is a part of the stimulator.

13. The method of Claim 11 wherein the stimulation parameters are determined using at least one external appliance.

14. The method of Claim 11 wherein providing power to the at least one stimulator comprises receiving power from at least one external appliance.

15. The method of Claim 14 wherein providing power to the at least one stimulator further comprises storing the power received from the at least one external appliance.

16. The method of Claim 11 further comprising providing and implanting more than one stimulator.

17. The method of Claim 11 wherein the at least one nerve structure comprises at least one of a trigeminal nerve, a branch of the trigeminal nerve, a trigeminal ganglion, an ophthalmic nerve, a branch of the ophthalmic nerve, a maxillary nerve, a branch of the maxillary nerve, a mandibular nerve, a branch of the mandibular nerve, a greater occipital nerve, a branch of the greater occipital nerve, a lesser occipital nerve, a branch of the lesser occipital nerve, a third occipital nerve, a branch of the third occipital nerve, a facial nerve, a branch of the facial nerve, a glossopharyngeal nerve, and a branch of the glossopharyngeal nerve.

18. The method of Claim 11 wherein the sensor senses at least one of electrical activity of the brain, electrical activity of a nerve, muscle activity, and patient movement.

19. The method of Claim 11 wherein the sensor senses at least one of medication level, neurotransmitter level, hormone level, cytokine level, enzyme level, level of a bloodborne substance, and level of a substance in the cerebrospinal fluid.

20. A system for treating a patient with epilepsy, comprising:
at least one leadless stimulator having at least two electrodes;
means for implanting the at least one stimulator adjacent to at least one nerve structure at least in part responsible for epileptic seizures;

means for providing operating power to the at least one stimulator;
at least one external appliance used to transmit stimulation parameters to
the at least one stimulator;

means for receiving and storing the stimulation parameters; and
means for generating stimulation pulses in accordance with the
stimulation parameters;

wherein the at least two electrodes deliver the stimulation pulses to
nerves adjacent to the at least one stimulator; and

wherein the stimulator has a size and shape suitable for placement of the
electrodes adjacent to the at least one nerve structure.

21. The system of Claim 20 further comprising
at least one sensor for sensing a physical condition; and
means for determining the stimulation parameters based upon the
sensed condition.

22. The system of Claim 21 wherein the sensor includes means for sensing
at least one of electrical activity of the brain, electrical activity of a nerve, muscle activity,
and patient movement.

23. The system of Claim 21 wherein the sensor includes means for sensing
at least one of medication level, neurotransmitter level, hormone level, cytokine level,
enzyme level, level of a bloodborne substance, and level of a substance in the
cerebrospinal fluid.